

عنوان مقاله:

Galerkin finite element method for forced Burgers' equation

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خلاصه مقاله:

In this paper second order explicit Galerkin finite element method based on cubic B-splines is constructed to compute numerical solutions of one dimensional nonlinear forced Burgers' equation. Taylor series expansion is used to obtain time discretization. Galerkin finite element method is set up for the constructed time discretized form. Stability of the corresponding linearized scheme is studied by using von Neumann analysis. The accuracy, efficiency, applicability and reliability of the present method is demonstrated by comparing numerical solutions of some test examples obtained by the proposed method with the exact and numerical solutions available in literature.

کلمات کلیدی:

Forced Burgers' equation, cubic B-splines, Galerkin Finite Element Method, Taylor series, von Neumann analysis

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